

Paratypes: USNM 373052 (=figs. 5–6 of MACNEIL [1934]) and USNM 373053.

Distribution: Southeastern United States Jackson Stage, equivalent to upper Eocene (upper Bartonian and Priabonian Stages). Jackson Stage: Crystal River Formation (=Ocala Limestone, restricted, according to PURI [1957]), northern Florida, localities USGS 6812 and 12751 (MACNEIL, 1934), Kendrick quarry (NICOL & SHAAK, 1973), unspecified localities in Columbia, Suwannee, Dixie, Gilchrist, Alachua, Levy, Marion, Citrus, and Sumter Counties, northern Florida (NICOL & SHAAK, 1973), and the following new localities: Newberry Corp. Pit 1, Dickerson Limerock Mines, Buda 1 Quarry, all from Alachua County, Florida, and Bell 1 Quarry, Gilchrist quarry, Florida; Toulmin collection locality Fla-1 (TOULMIN, 1977); Ocala Limestone, southwestern Georgia (NICOL & SHAAK, 1973); Castle Hayne Marl, unspecified localities in Pender and Wayne Counties, southeastern and north-central North Carolina (NICOL & SHAAK, 1973).

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APPENDIX

Localities Cited

- CSUN 473:** At elevation of 503 m (1650 ft) on a ridge, 320 m (1050 ft) north and 701 m (2300 ft) west of southeast corner of section 30, T3N, R17W, Santa Susana 7.5-minute quadrangle, 1969, northern Simi Valley, Ventura County, California. Locality is in the "Stewart bed" (SQUIRES, 1984:61). Llajas Formation. Age: Early middle Eocene ("Domengine Stage"). Collector: R. L. Squires.
- CSUN 1220b:** North side of a minor canyon, at an elevation of 120 m, on the west side of Mesa La Salina, 100 m above the bottom of the exposures of the Bateque Formation, approximately 1.25 km southeast of the intersection of 113°00'W and 26°45'N, San Jose de Gracia, Baja California Sur, Mexico, 1:50,000 quadrangle map (number G12A64), issued in 1983 under the authority of the Direccion General de Geografia. Bateque Formation. Age: Middle early Eocene ("Capay Stage"). Collectors: R. L. Squires and Robert Demetron.
- UCMP A-1007:** Coarse sandstone reef, underlying and overlying shale, outcropping about 100 m from the mouth of a small gully on the north bank of Los Gatos Creek, which is a few kilometers north of the town of Coalinga and in the NE ¼, sec. 10, T20S, R14E (CLARK, 1934:272), Alcalde Hills 7.5-minute quadrangle, 1969, Fresno County, central California. Domengine Formation. Age: Early middle Eocene ("Domengine Stage"). Collector: Alex Clark.
- UCMP 7004:** At elevation of 518 m (1700 ft) on a small cliff on south side of a side canyon to Las Llajas Canyon, 594 m (1950 ft) north and 556 m (1825 ft) east of southeast corner of section 29, T3N, R17W, Santa Susana 7.5-minute quadrangle, 1969, northern Simi Valley, Ventura County, southern California. Locality is in the "Stewart bed" and is equivalent to localities UCLA 2312 and CSUN 374 (SQUIRES, 1984:58). Llajas Formation. Age: Early middle Eocene ("Domengine Stage"). Collectors: B. L. Clark and R. L. Squires.
- UF locality Newberry Corp. Pit 1:** SW ¼, SE ¼, sec. 13, T9S, R17E, Newberry quadrangle, Alachua County, northern Florida. Ocala Limestone. Age: Late Eocene. Collectors: H. S. Puri and others.
- UF locality Dickerson Limerock Mines (Haile Complex):** T9S, R17E, Newberry quadrangle, Alachua County, northern Florida. Inglis/Crystal River Formation. Age: Late Eocene. Collectors: D. S. Jones and students; D. Nicol and others.
- UF locality Buda 1 Quarry (bed 3):** NE ¼, NE ¼, sec. 32, T8S, R17E, High Springs SW quadrangle, Alachua County, northern Florida. Ocala Limestone. Age: Late Eocene. Collectors: H. S. Puri and others.
- UF locality Bell Quarry (bed 6):** SE ¼, NW ¼, sec. 24, R14E, T8S, Bell quadrangle, Gilchrist County, northern Florida. Ocala Limestone. Age: Late Eocene. Collectors: H. S. Puri and others.
- UF locality quarry west of U.S. 441 at south edge of Kendrick:** NW ¼, sec. 25, T14S, R21E, Marion County, northern Florida (NICOL & SHAAK, 1973). Crystal River Formation. Age: Late Eocene. Collectors: University of Florida, Gainesville, staff.
- USGS 6812:** Cummer Lumber Company, 2 km south of Newberry, Alachua County, northern Florida (MACNEIL, 1934:431). Crystal River Formation. Age: Late Eocene. Collector: C. W. Cooke.
- USGS 12751:** Sumter Rock Co. quarry, about 3.2 km (2 mi.) northeast of Sumterville, Sumter County, northern Florida (MACNEIL, 1934:431). Crystal River Formation. Age: Late Eocene. Collectors: W. C. Mansfield and G. M. Ponton.
- Toulmin's (1977) collection, Fla-1:** Mayo quarry, 7.5 km northwest of Mayo on U.S. Highway 27 and about 0.8 km south of Mayo fire tower in SE ¼, sec. 32, T4S, R11E, Lafayette County, northern Florida (TOULMIN, 1977:388). Crystal River Formation. Age: Late Eocene. Collector: L. D. Toulmin.

Nanomelon vossi, a New Deep-Water Zidoninae from Off Southern Brazil (Gastropoda: Volutidae)

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Abstract. *Nanomelon vossi* sp. nov. is described from the upper bathyal zone on the slope off Rio Grande do Sul State, Brazil. The new species belongs to a recently described genus, originally thought to be monotypic. It is closely related to *N. viperinus*, differing by a larger spire angle, smaller protoconch, more convex whorls, less elongate profile, larger number of spiral cords with much narrower interspaces, and flatter axial ribs in the shell. Differences in morphology of the uniserial radula are restricted to changes in the relative positions of elements and proportions of the rachidian tooth.

INTRODUCTION

The volutid genus *Nanomelon* Leal & Bouchet, 1989, originally monotypic, was recently described from deep waters off southeastern Brazil. After the publication of the description of *Nanomelon*, we realized that a small, unknown volutid, collected in 1986 on the slope off Rio Grande do Sul State, Brazil, by the Brazilian research vessel *Atlântico Sul* of the "Fundação Universidade do Rio Grande," belongs in the same genus.

Deterioration of the soft parts due to poor preservation impeded proper anatomical comparisons with the previously described species. Notwithstanding, radular and conchological characters are distinctive enough to permit the generic allocation of the new species.

Abbreviations used in the description are as follows: MNHN, Muséum National d'Histoire Naturelle, Paris, France; MNRJ, Museu Nacional, Rio de Janeiro, Brazil; MORG, Museu Oceanográfico Prof. E. de C. Rios, Rio Grande, Brazil; USNM, National Museum of Natural History, Washington.

DESCRIPTION

Family VOLUTIDAE Rafinesque, 1815

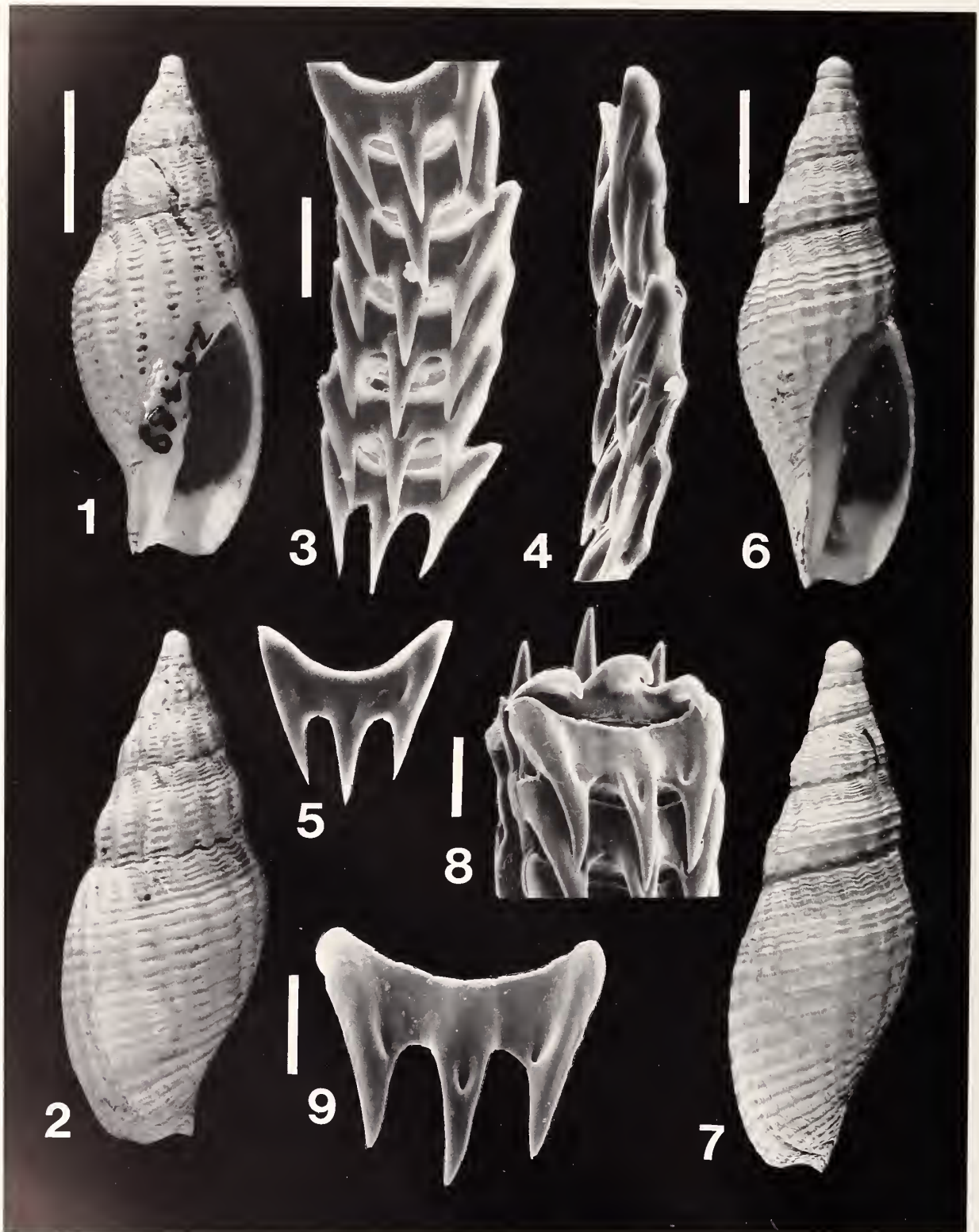
Subfamily ZIDONINAE H. & A. Adams, 1853

Genus *Nanomelon* Leal & Bouchet, 1989

Nanomelon vossi Leal & Rios, sp. nov.

(Figures 1-5, Table 1)

Shell (Figures 1, 2, Table 1): Fusiform (length/width about 2.5), reaching 35 mm length, 13 mm width. Spire angle about 40 degrees. Shell surface opaque, dirty-white to yellowish-white. Periostracum very thin, yellowish-brown. Protoconch white, cylindrical, about 2.25 whorls, about 1.8 mm in diameter. Spiral striation adapical to suture, barely discernible. Embryonic whorl about 0.8 mm, rapidly expanding into first protoconch whorl, but last protoconch whorl with same diameter as preceding one. Teleoconch with 4.5 shouldered whorls (holotype). Suture impressed, sutural ramp slightly concave. Combination of



Explanation of Figures 1 to 9

Figures 1-5. *Nanomelon vossi* sp. nov. Figures 1, 2. Holotype, off Rio Grande do Sul, Brazil, 32°25'S, 50°11'W, 460 m depth, ventral and dorsal views of the shell. Figures 3-5. SEM micro-

graphs of radula; anterior margin of teeth towards the top of illustration. Scale bar equals 10 mm in Figures 1 and 2. Figure 3. Radular ribbon. Figure 4. Lateral view of radular ribbon.